STEREO INTEGRATED AMPLIFIER

KA-1100D

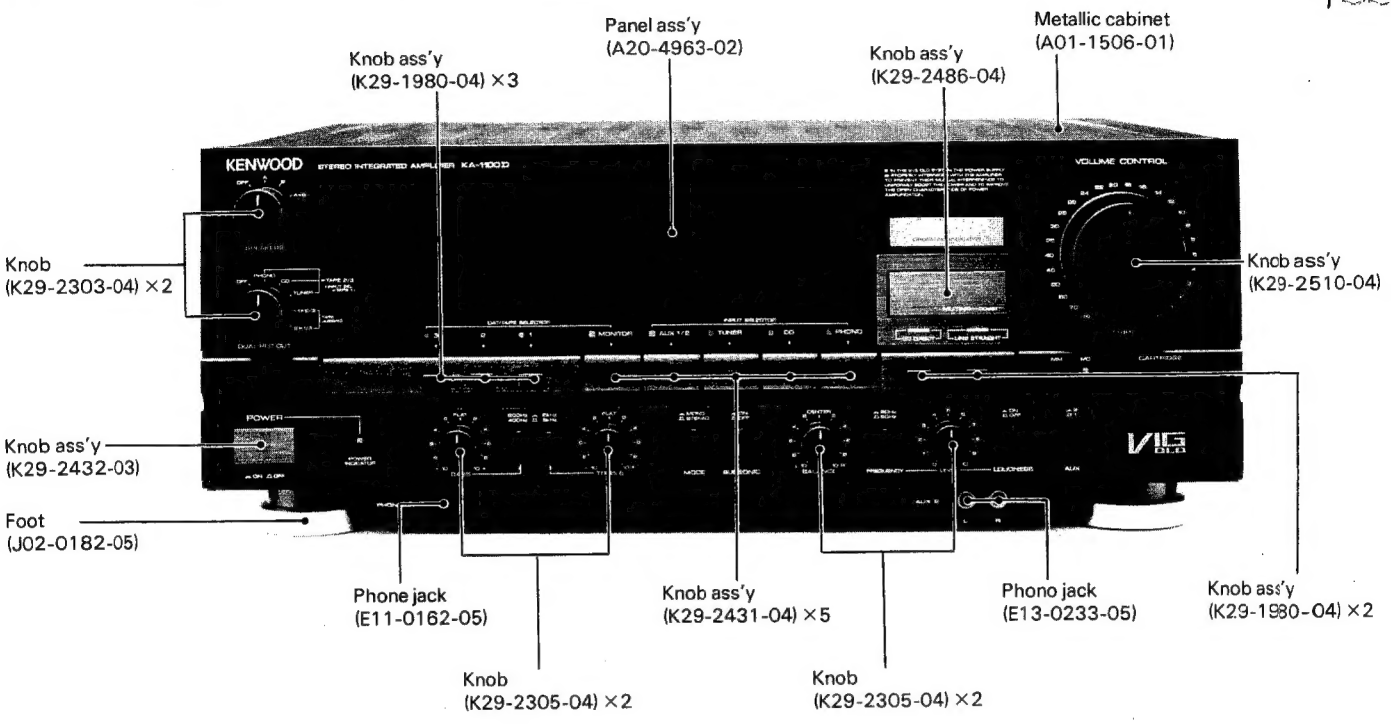
SERVICE MANUAL

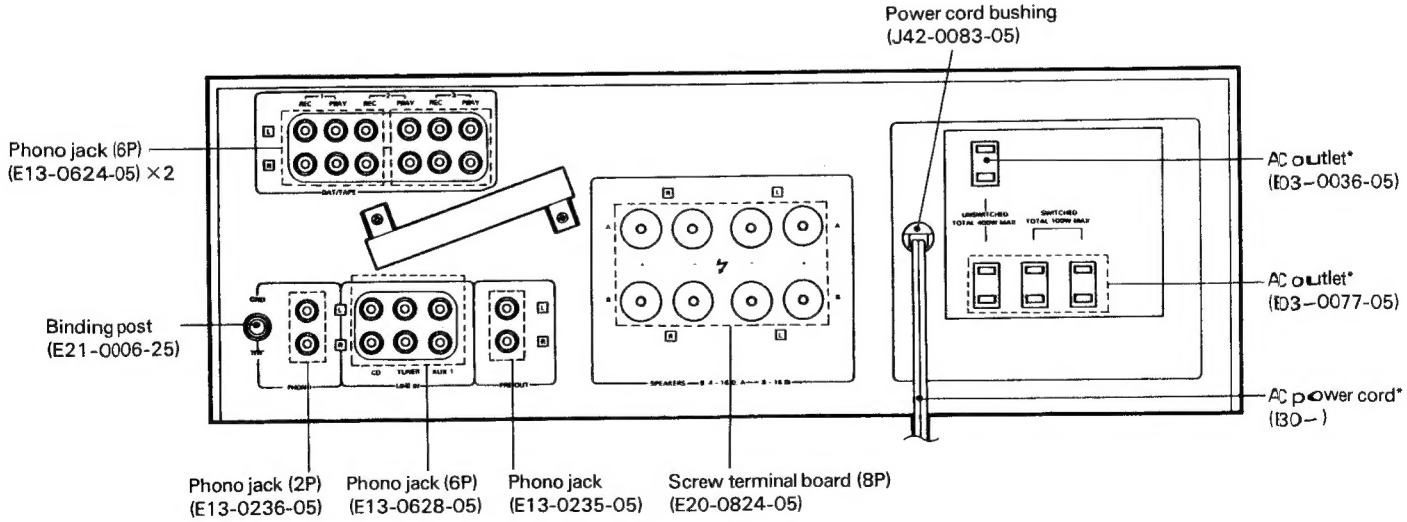
KENWOOD

KENWOOD CORPORATION

B51-3007-00(B)1154

T35

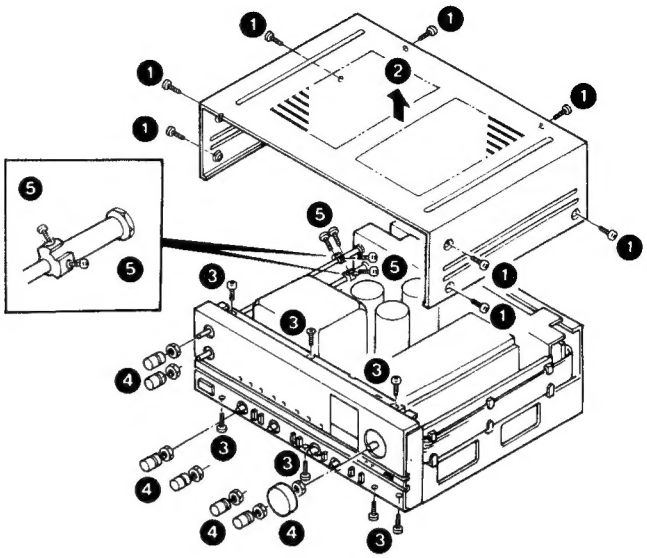




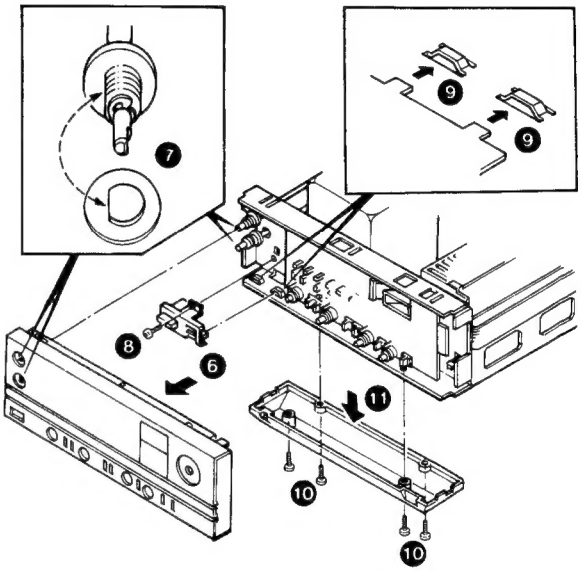
* Refer to parts list on page 11.

DISASSEMBLY FOR REPAIR

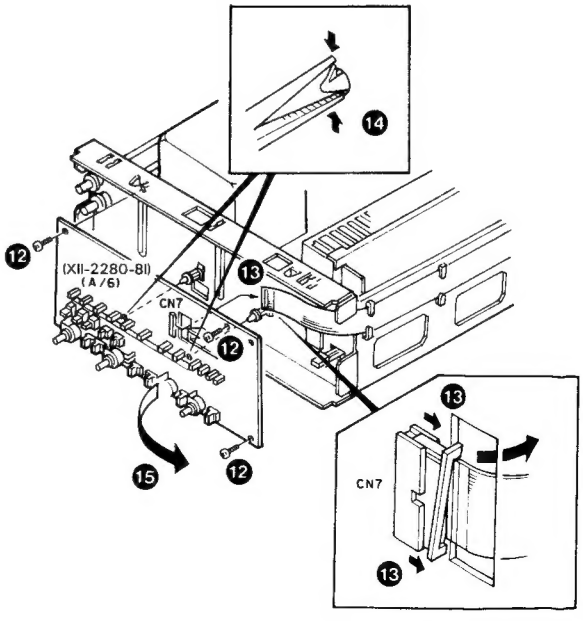
❶ Remove the 8 screws on the top cover.
❷ Remove the top cover in the direction of the arrow.
❸ Remove the 7 screws on the front panel.
❹ Remove the 7 knobs on the front panel. Remove the nuts from the front panel without damaging the panel itself.
❺ Loosen the 4 screws shown in exploded-view ref. 15.



❻ Remove the front panel in the direction of the arrow.
❼ Observe the following cautions when installing the front panel.
❽ Remove the screw on the fitting on the power switch.
❾ When installing the fitting, align it with the sub-chassis groove.
❿ Remove the 4 screws on the terminal cover.
⓫ Remove the terminal cover in the direction of the arrow.

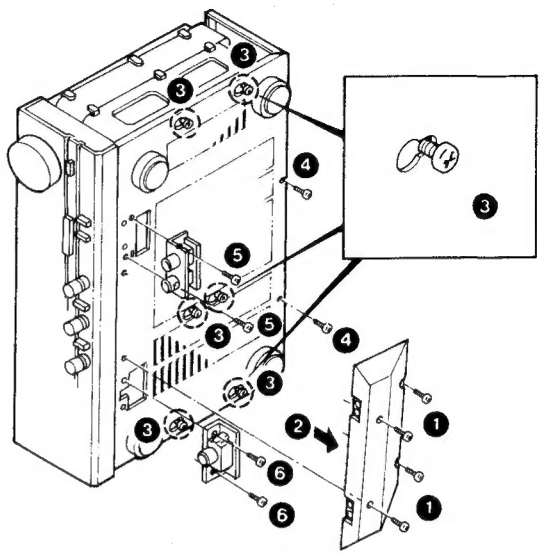


⓬ Remove the 3 screws on the (X11) (A/6) PCB.
⓭ Remove the CN7 flexible cord on the PCB in the direction of the arrow.
⓮ Remove the item pictured in exploded-view ref. 29 using a pair of pliers.
⓯ Remove the PCB in the direction of the arrow.

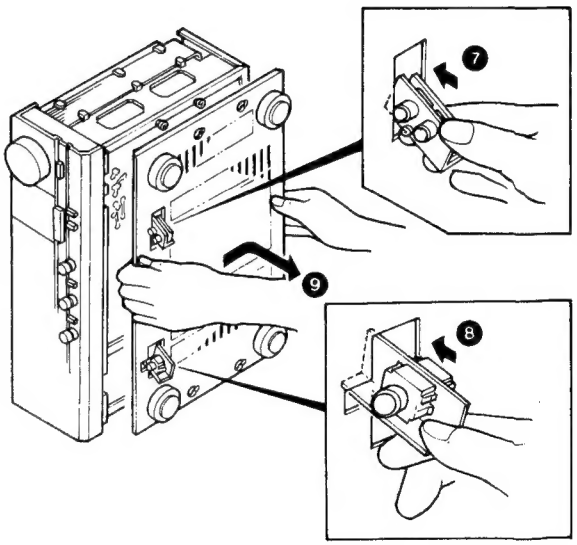


DISASSEMBLY FOR REPAIR

1. Remove the 4 screws on the terminal cover.
2. Remove the terminal cover in the direction of the arrow.
3. Loosen halfway the 6 screws on the bottom cover.
4. Remove the 2 screws on the bottom cover.
5. Remove the 2 screws on the AUX jack.
6. Remove the 2 screws on the PHONES jack.

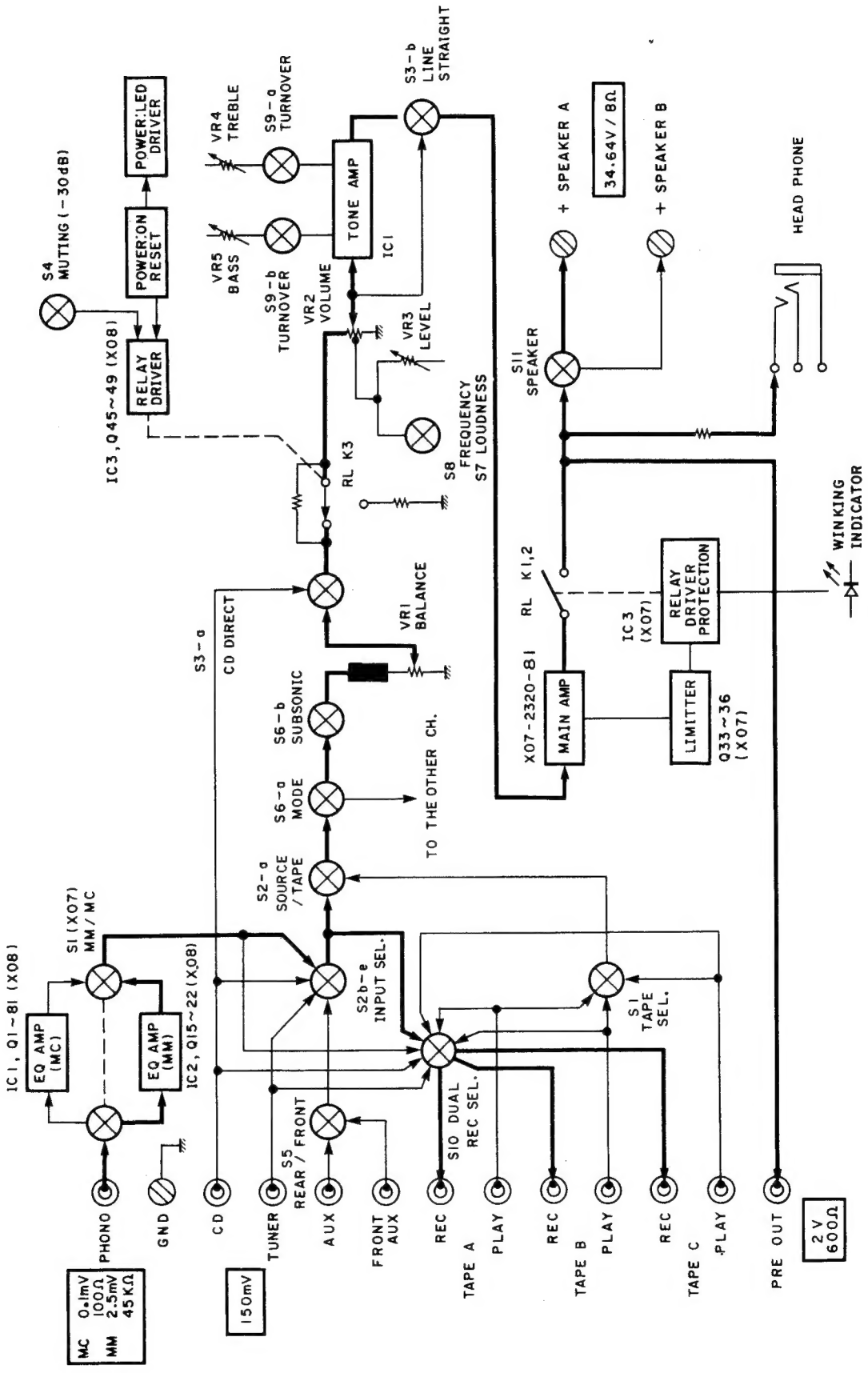


7. Slide the AUX jack into the slot in the bottom cover in the direction of the arrow.
8. Slide the PHONES jack into the slot in the bottom cover in the direction of the arrow.
9. Remove the bottom cover from the main unit in the direction of the arrow.



KA-1100D

BLOCK & LEVEL DIAGRAM



CIRCUIT DESCRIPTION

Main Amplifier Unit (X07-2320-81)

Ref. No.	Application/Function	Description
Q1～4	Predriver	
Q5～8	Predriver	
Q9～20	Cascode bootstrap circuit	Comprises the VIG (Voltage Interface Gate) circuit. Q9, 10, 13 and 14 are the constant voltage circuits. Q11, 12, 15 and 16 are the buffer. Q17—20 is the base ground and comprises the Cascode ground.
Q21, 22	Bias circuit	For final transistor temperature compensation.
Q23, 24	Constant current circuit	Main class A initial differential circuit. Increases CMRR (Common Mode Rejection Ratio) and SVRR (Supression Voltage Rejection Ratio).
Q25～28	High power	High output final transistor.
Q29～32	Low power	Low power final transistor.
Q33～36	Current limiter	Imposes power current control on the final transistor during overload drive.
Q51～54	Constant voltage circuit	Main class A-stage constant voltage circuit. Q51 and 52 are the control transformers. Q53 and 54 comprise the error amplifier.
Q55, 56	Protection driver	Ripple eliminator circuit inserted in the class A initial B line.
Q57	Constant voltage circuit	Transmits Q33 and 34 current limiter operation signals to the protection IC (IC3).
Q58	Constant voltage circuit	Muting relay and tact switch drive circuit constant voltage circuit.
Q59～62	Constant voltage circuit	Equalizer amplifier constant voltage power circuit. Q59 and 60 are the control. Q61 and 62 comprise the error amplifier.
IC1, 2	DLD switching IC	DLD High-Low switching circuit.
IC3	Protection IC	Performs output relay control during limiting when the power is turned on or off, when there is DC leakage to the SP terminal, and if there are overloads.

Preamplifier Unit (X08-2180-81)

Ref. No.	Application/Function	Operation
Q1～4	EQ MC initial differential amplification circuit	
Q5～8	EQ initial Cascode circuit	
Q19～22		
Q9, 10, 23, 24	EQ constant voltage circuit	Improves initial error SVRR and CMRP.
Q11～14	EQ MC output emitter follower circuit	
Q15～18	EQ MM initial differential amplification circuit	
Q25, 26	Class A initial error amplification circuit	
Q27～30	Class A initial Cascode circuit	
Q31～34	Class A second-stage error amplification circuit	
Q35～38	Class A third-stage error amplification circuit	
Q39～42	Class A Cascode circuit	
Q43, 44	Class A current mirror circuit	
Q45～49	Muting control, drive circuit	Muting lamp and relay control and drive.
IC 1, 2	EQ-use OP Amp IC	
IC3	Muting circuit-use	J-K flip-flop.

CIRCUIT DESCRIPTION

Control Unit (X11-2280-81)

Ref. No.	Application/Function	Operation
IC1	Tone control circuit IC	
Q1	Lamp constant voltage, circuit	Keeps the voltage applied to the lamp at 27 volts.
Q2, 3	Winking circuit	The LED lights up when the power display and set are operating properly. The LED flashes during the 5-second interval between the time the power is turned on and when the amplifier stabilizes. The LED also flashes if the main amplifier is not working properly and the protection circuit has been activated.

New VIG DLD Circuit

1. Features

As the successor model to the KA-1100SD, the KA-1100D retains the rich array of functions available on the KA-1100SD, making the KA-1100D the perfect amplifier for a sophisticated model like the KA-990V. The KA-1100D incorporates new technology appropriate for an up-market integrated amplifier, such as:

1. A new VIG DLD (Dynamic Linear Drive) circuit
2. A dual phono equalizer
3. A dual REC OUT switch

2. A New VIG DLD Circuit

Refer to the KA-990V new-product data for an explanation of the principle on which VIG operates.

The configuration of the VIG circuit incorporated in the current KA-990V is depicted in Figure 1.

In addition to preventing the influx of undesirable power source components (such as ripples) into the Q1 driver transistor, the VIG circuit also applies a bootstrap to the output as shown in Figure 1A. The output from the VIG then follows the output from the amplifier in a constant voltage shift pattern. The input signal is no longer absorbed by the power source according to the potential which exists between the input and the power, and high-frequency characteristics and distortion rates are improved.

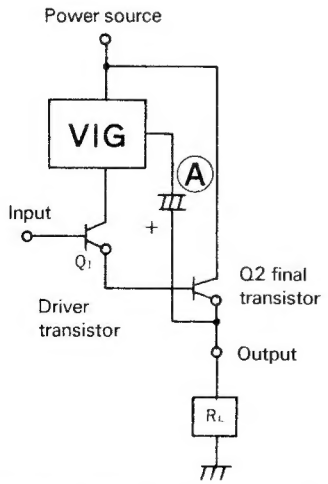


Figure 1 Configuration of a Conventional VIG Circuit

As a result, the voltage across the output of Q1 (the emitter) and the power source (the collector) is held constant whether or not there is a signal (see Figure 2).

This insertion of a VIG circuit in the initial stage of a Darlington connection circuit means that undesirable power source components do not undergo current amplification at Q2, the final transistor. In other words, large-capacity power sources free of ripples become the norm.

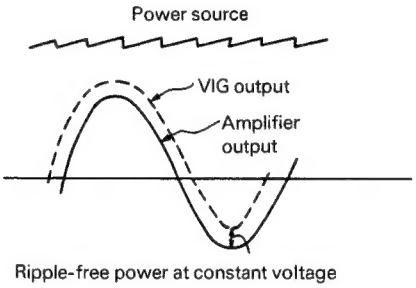


Figure 2 VIG Output and Amplifier Output

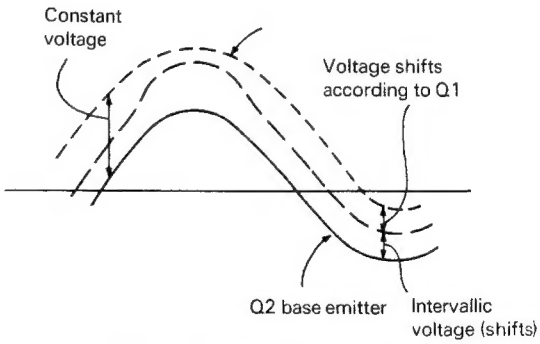


Figure 3 VB-E and VIG Output

CIRCUIT DESCRIPTION

Upon further investigation, however, doubts arose concerning operation of the Q2 driver transistor at the abovementioned constant voltage. That is, the voltage across the transistor base and emitter could be thought of as normally about 0.6 volts, but the final transistor voltage shifted between 0.6 to about 2.0 volts in keeping with the output current (see Figure 3). In the conventional configuration depicted in Figure 1, this shift caused the voltage applied to the driver transistor Q1 to shift as well. It became clear that with the conventional configuration undesirable power source components were suppressed, but this in turn produced new voltage shift components.
The new VIG circuit applies a bootstrap to the Q2 final transistor base as shown in Figure 4. In addition, a buffer has been inserted so that any undesirable power source components which may leak through the bootstrap do not undergo current amplification at Q2.

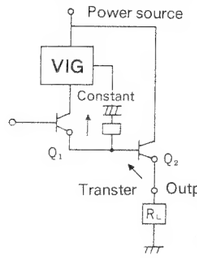


Figure 4 Configuration of the New VIG Circuit

With this configuration, the new VIG circuit permits capacities to be utilized to the fullest extent.
Undesirable power source components can be suppressed, as can the shift component produced by operation of the circuit itself, for effectiveness 25 times greater than that of conventional circuit configurations. This permits Q1 to operate at an ideal constant voltage and allows only very pure signals to be input to the final transistor, making possible "cleaner" overall amplification.

3. Effects of the New VIG Circuit

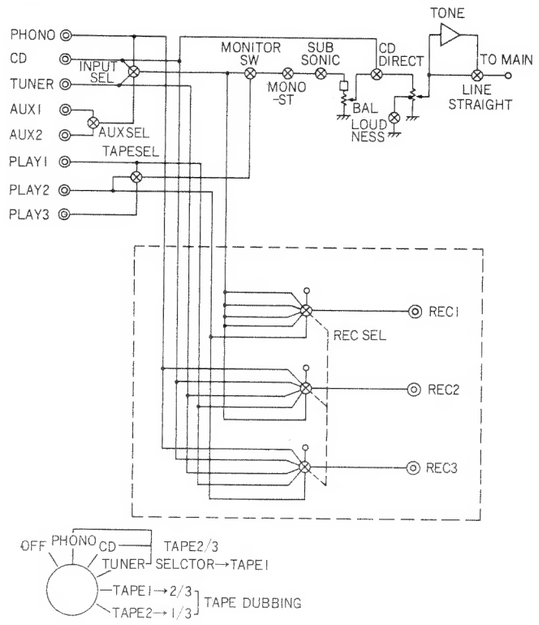
1. Effects on the amplifier of ripples and signal components caused by the power source, as well as the cross modulation distortion to which they give rise, are drastically reduced for clear, sharp audio.
2. Power can be boosted accordingly (over 10 times conventional levels) for brilliant audio.
3. Improves raw effects at the pre-negative feedback voltage amplification stage for broad band, low-distortion sound.
4. Reduces dynamic crosstalk and other power source-induced interference.

4. Dual REC OUT

REC 1, 2, 3 output the signals indicated in the chart at right.
REC 1 functions as the source selector, while REC functions as the Rec selector.
During tape dubbing, the source signal is output at the playback TAPE REC-OUT.

POSITION	REC 1	REC 2	REC 3
OFF	OFF	OFF	OFF
PHONO→2, 3	SOURCE	PHONO	PHONO
CD →2, 3	SOUREC	CD	CD
TUNER→2, 3	SOUREC	TUNER	TUNER
TAPE A→2, 3	SOUREC	PLAY 1	PLAY 1
TAPE B→1, 3	PLAY 2	SOUREC	PLAY 2

Note: Signal selected by the SOURCE INPUT SEL.



ADJUSTMENT/REGLAGE/ABGLEICH

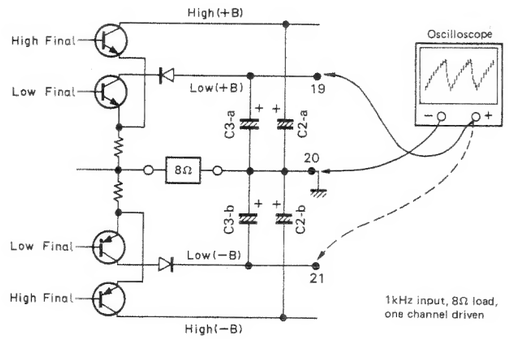
No.	ITEM	INPUT SETTINGS	OUTPUT SETTINGS	AMPLIFIER SETTINGS	ALIGNMENT POINTS	ALIGN FOR	FIG.
1	IDLE CURRENT	–	Connect a DC voltmeter across CP3 (L) CP4 (R)	VOLUME: 0	VR1 (L) VR2 (R)	9mV	

N°	ITEM	REGLAGE DE L'ENTREE	REGLAGE DE LA SORTIE	REGLAGE DE L'AMPLIFICATEUR	POINS L'ALIGNEMENT	ALIGNER POUR	FIG.
1	COURANT DE POLARISATION	–	Connecter un voltmètre de CC sur CP3 (G) CP4 (D)	VOLUME: 0	VR1 (G) VR2 (D)	9mV	

NR.	GEGENSTAND	EINGANGS-EINSTELLUNG	AUSGANGS-EINSTELLUNG	VERSTÄRKER EINSTELLUNG	ABGLEICH-PUNKTE	ABGLEICHEN FÜR	ABB.
1	LEERLAUFSTROM	–	Einen Gleichspannungs-messer über CP3 (L) CP4 (R) anschließen.	VOLUME: 0	VR1 (L) VR2 (R)	9mV	

CHECKING METHOD OF SUPER DLD CIRCUIT OPERATION

1. Connect an oscilloscope to LOW (+B) and GND.
   Set the oscilloscope input coupling mode to AC.



2. Continuously change the output voltage and monitor the ripple waveform at high and low switching.

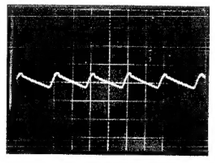


Photo 1
Volume : 0

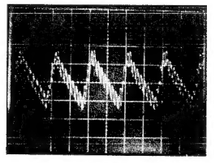


Photo 2
Just before switching

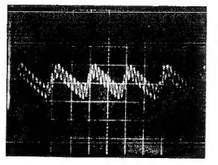


Photo 3
Just after switching

3. Connect the oscilloscope to HIGH (–B) and GND.
   Set the oscilloscope input coupling mode to AC.

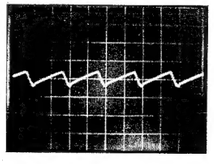


Photo 4
Volume : 0

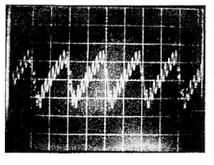


Photo 5
Just before switching

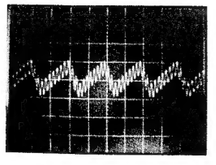
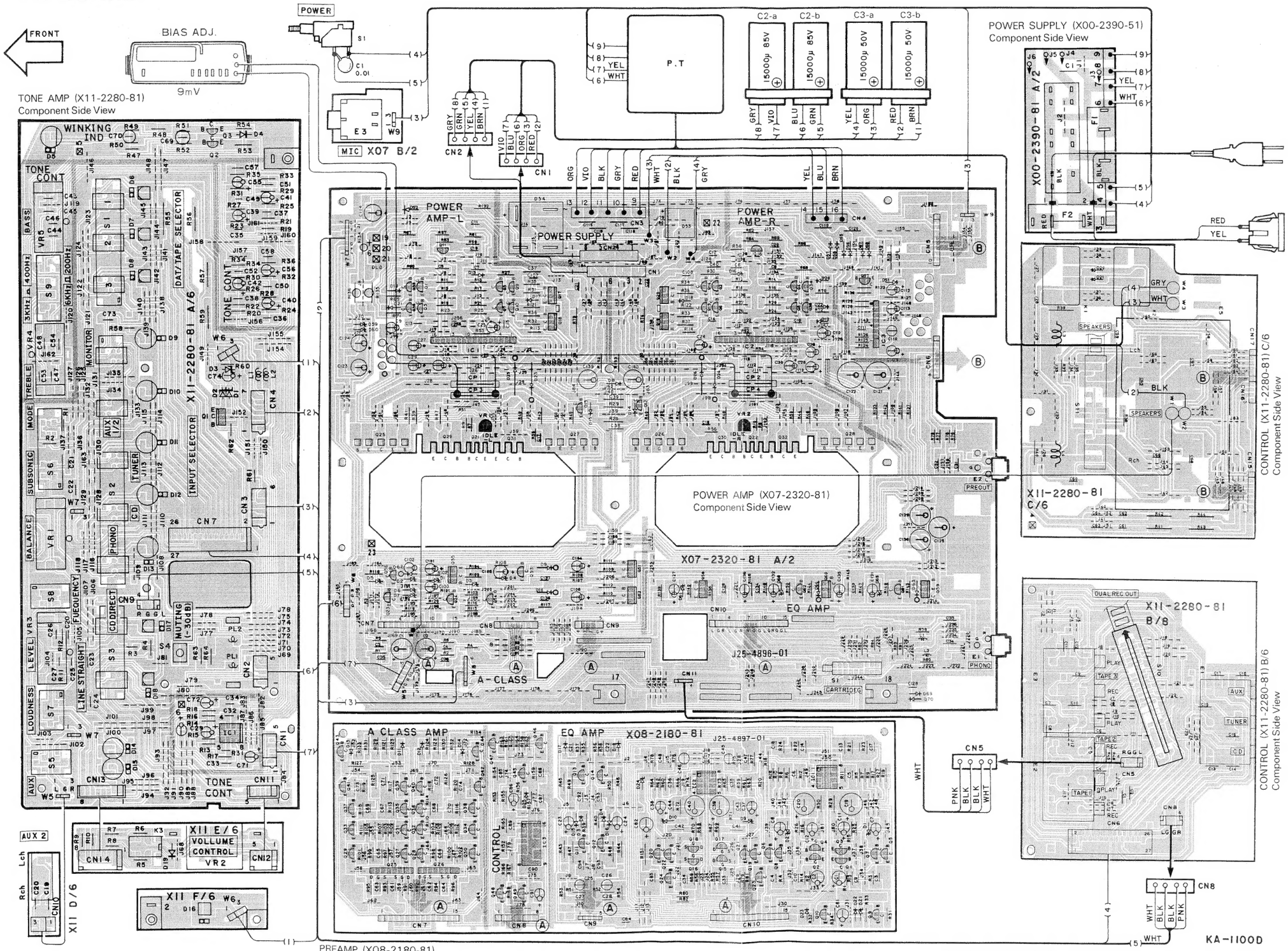


Photo 6
Just after switching

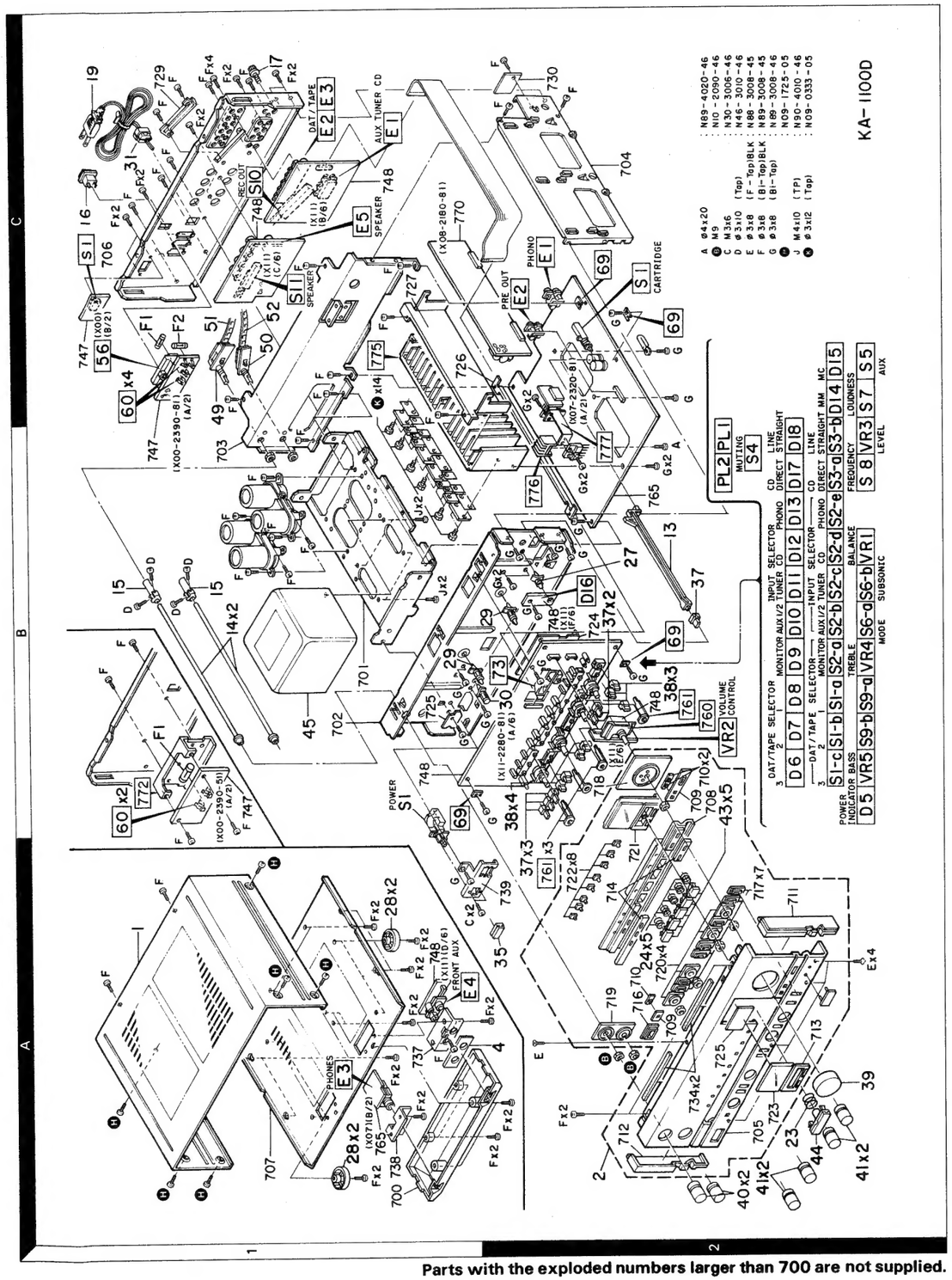
4. Check on the opposite channel's LOW (+B) and HIGH (–B) line in the same way.

PC BOARD



Refer to the schematic diagram for the values of resistors and capacitors.

EXPLODED VIEW



Parts with the exploded numbers larger than 700 are not supplied.

PARTS LIST

* New Parts
Parts without **Parts No.** are not supplied.
Les articles non mentionnes dans le **Parts No.** ne sont pas fournis.
Teile ohne **Parts No.** werden nicht geliefert.

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名／規格	Destination 仕向	Remarks 備考
			KA-1100D			
1	1A	*	A01-1506-01	METALLIC CABINET		
2	2A	*	A20-4963-02	PANEL ASSY		
4	2A	*	B03-2132-04	DRESSING PLATE		
-			B46-0122-13	WARRANTY CARD	E	
-		*	B50-6412-00	INSTRUCTION MANUAL(ENGLISH)		
-		*	B50-6413-00	INSTRUCTION MANUAL(FRENCH)		
-		*	B50-6414-00	INSTRUCTION MANUAL(SPANISH)	M	
-		*	B50-6415-00	INSTRUCTION MANUAL(G,D,I)	E	
-			B58-0245-33	CAUTION CARD	E	
⚠ C1			C91-0023-05	CERAMIC 0.01UF AC250V	M	
⚠ C1			C91-0647-05	CERAMIC 0.01UF P	E	
⚠ C2		*	C90-1405-05	ELECTRO 15000UF 85WV		
⚠ C3		*	C90-1407-05	ELECTRO 15000UF 45WV		
13	2B		D21-1103-03	EXTENSION SHAFT(CARTRIDGE)		
14	1B	*	D21-1107-24	EXTENSION SHAFT(REC OUT,SPKRS)		
15	1B		D22-0047-04	SHAFT COUPLING		
⚠ 16	1C		E03-0036-05	AC OUTLET	M	
17	1C		E21-0006-25	BINDING POST		
⚠ 19	1C		E30-0580-05	AC POWER CORD	E	
⚠ 19	1C		E30-0812-05	AC POWER CORD	M	
⚠ F1	1B		F05-4025-05	FUSE (SEMKO) (250V T4A)	E	
⚠ F1 ,2	1C		F05-4022-05	FUSE (250V 4A)	M	
23	2A		G01-0489-04	COMPRESSION SPRING(MUTING)		
24	2A		G01-1751-04	COMPRESSION SPRING		
-		*	H01-7309-04	ITEM CARTON CASE		
-		*	H10-3339-02	POLYSTYRENE FOAMED FIXTURE		
-		*	H10-3340-02	POLYSTYRENE FOAMED FIXTURE		
-			H25-0232-04	PROTECTION BAG (235X350)		
-		*	H25-0274-04	PROTECTION BAG		
27	2B		J19-0586-05	UNIT HOLDER		
28	1A	*	J02-0182-05	FOOT		
29	1B,2B		J19-0515-05	UNIT HOLDER		
30	2B		J19-2536-05	UNIT HOLDER		
⚠ 31	1C		J42-0083-05	POWER CORD BUSHING		
-			J61-0307-05	WIRE BAND		
35	2A		K29-2432-03	KNOB ASSY (POWER)		
37	2A,2B		K29-1980-04	KNOB ASSY (TAPE)		
38	2B		K29-2243-04	KNOB ASSY (AUX)		
39	2A	*	K29-2510-04	KNOB ASSY (VOLUME CONTROL		
40	2A		K29-2303-04	KNOB (REC OUT,SPKRS)		
41	2A		K29-2305-04	KNOB (BASS,TREB,BAL)		
43	2B		K29-2431-04	KNOB ASSY (BUTTON)		
44	2A	*	K29-2486-04	KNOB ASSY (MUTING)		
⚠ 45	1B	*	L01-7342-05	POWER TRANSFORMER	E	
⚠ 45	1B	*	L01-7345-05	POWER TRANSFORMER	M	
B	2A		N10-2090-46	HEXAGON NUT (M9)		
H	1A	*	N09-1729-05	TAPTITE SCREW		
49	1C	*	S90-0100-05	REMOTE SWITCH SHAFT(REC OUT)		

E: Scandinavia & Europe H:Audio Club K: USA P: Canada W:Europe
T: England U: PX(Far East, Hawaii)
UE : AAFES(Europe) X: Australia M: Other Areas

⚠ indicates safety critical components.

PARTS LIST

＊ New Parts
Parts without **Parts No.** are not supplied.
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Telle ohne **Parts No.** werden nicht geliefert.

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名／規格	Destination 仕向	Remarks 備考
50	1C		S90-0093-05	REMOTE SWITCH SHAFT(SPEAKERS)		
51	1C		S90-0094-05	REMOTE WIRE (REC OUT)		
52	1C		S90-0095-05	REMOTE WIRE (SPEAKERS)		
⚠ -			S59-1055-05	THERMAL SWITCH		
⚠ S1	1B		S40-1094-05	PUSH SWITCH (POWER TYPE)		
POWER SUPPLY UNIT (X00-2390-51)						
⚠ C1			C91-0023-05	CERAMIC 0.01UF AC250V	M	
⚠ C1			C91-0647-05	CERAMIC 0.01UF P	E	
⚠ 56	1C	＊	E03-0077-05	AC OUTLET	M	
60	1C		J13-0041-05	FUSE CLIP	M	
60	1C		J13-0054-05	FUSE CLIP	E	
⚠ S1	1C		S31-2083-05	SLIDE SWITCH (POWER TYPE)	M	
POWER AMPLIFIER UNIT (X07-2320-81)						
C1 ,2			CE04KW0J102M	ELECTRO 1000UF 6.3WV		
C3 ,4			CC45FSL1H220J	CERAMIC 22PF J		
C5 -8			C91-0749-05	CERAMIC 220PF K		
C9 ,10			CE04KW1C220M	ELECTRO 22UF 16WV		
C11 ,12			CF92FV1H153J	MF 0.015UF J		
C13 -16			CF92FV1H122J	MF 1200PF J		
C17 ,18			CK45FB2H102K	CERAMIC 1000PF K		
C19 ,20			CK45FB1H471K	CERAMIC 470PF K		
C21 ,22			CF92FV1H473J	MF 0.047UF J		
C23 -30			CE04KW2A010M	ELECTRO 1.0UF 100WV		
C31 -34			C91-0747-05	CERAMIC 150PF K		
C35 ,36			CC45FSL1H101J	CERAMIC 100PF J		
C37			C91-0753-05	CERAMIC 470PF K		
C38 -40			C91-0753-05	CERAMIC 470PF K		
C101,102			CE04KW1H010M	ELECTRO 1.0UF 50WV		
C103			CE04KW1A470M	ELECTRO 47UF 10WV		
C104			CE04KW2A010M	ELECTRO 1.0UF 100WV		
C105			CE04KW1A101M	ELECTRO 100UF 10WV		
C106			CE04KW2A010M	ELECTRO 1.0UF 100WV		
C107			CF92FV1H392J	MF 3900PF J		
C108			CF92FV1H392J	MF 3900PF J		
C109			CE04KW1C220M	ELECTRO 22UF 16WV		
C110			C90-1333-05	NP-ELEC 10UF 25WV		
C111			CF92FV1H223J	MF 0.022UF J		
C112			CE04KW1V4R7M	ELECTRO 4.7UF 35WV		
C113			CE04KW1C470M	ELECTRO 47UF 16WV		
C114			CE04KW1H101M	ELECTRO 100UF 50WV		
C115-120			CK45FE2H103P	CERAMIC 0.010UF P		
C121,122			CE04KW1V102M	ELECTRO 1000UF 35WV		
C123,124			CE04KW1E221M	ELECTRO 220UF 25WV		
C125			CE04KW1V221M	ELECTRO 220UF 35WV		
C126			CF92FV1H103J	MF 0.010UF J		
C127			CE04KW1E470M	ELECTRO 47UF 25WV		
C128			CK45FB1H102K	CERAMIC 1000PF K		
C129,130			CE04KW1V471M	ELECTRO 470UF 35WV		
C131,132			CE04KW1A470M	ELECTRO 47UF 10WV		
C133,134			CF92FV1H103J	MF 0.010UF J		
C135,136			CE04KW1HR22M	ELECTRO 0.22UF 50WV		
C137,138			C91-0033-05	MF 1UF 100V		
C139,140			CE04KW2A220M	ELECTRO 22UF 100WV		

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C141			CC45SL1H151J	CERAMIC 150PF J		
69	2C		E23-0125-05	TERMINAL		
E1	2C	＊	E13-0236-05	PHONO JACK(2P) PHONO		
E2	2C		E13-0235-05	PHONO JACK(2P) PRE OUT		
E3	1A		E11-0162-05	PHONE JACK(3P) PHONES		
L1 ,2			L40-1011-47	SMALL FIXED INDUCTOR(100UH,K)		
K	1C		N09-0333-05	TAPPING SCREW (Ø3X12)		
CP1 -4			R90-0187-05	MULTI-COMP 0.22X2 K 5W		
R1 ,2			RN14BK2C1960FTS	RN 196.0 F 1/6W		
R3 ,4			RN14BK2C4752FTS	RN 47.5K F 1/6W		
R11 -14			RD14AB2E821J	FL-PROOF RD 820 J 1/4W		
R15 -18			RD14AB2E561J	FL-PROOF RD 560 J 1/4W		
R19 -22			RD14AB2E150J	FL-PROOF RD 15 J 1/4W		
R23 -26			RD14AB2E151J	FL-PROOF RD 150 J 1/4W		
R27 -30			RD14AB2E331J	FL-PROOF RD 330 J 1/4W		
R31 -34			RD14AB2E221J	FL-PROOF RD 220 J 1/4W		
R35 -38			RD14AB2E271J	FL-PROOF RD 270 J 1/4W		
R39 -46			RD14AB2E220J	FL-PROOF RD 22 J 1/4W		
R47 -50			RD14AB2E4R7J	FL-PROOF RD 4.7 J 1/4W		
R61 -64			RD14AB2E911J	FL-PROOF RD 910 J 1/4W		
R65 -68			RD14AB2E471J	FL-PROOF RD 470 J 1/4W		
R73 ,74			RS14DB3D220JTE	FL-PROOF RS 22 J 2W		
R81 ,82			RN14BK2C4752FTS	RN 47.5K F 1/6W		
R83 ,84		＊	RN14BK2C5620FTS	RN 562.0 F 1/6W		
R104,105			RD14AB2E471J	FL-PROOF RD 470 J 1/4W		
R109,110			RD14AB2E330J	FL-PROOF RD 33 J 1/4W		
R111,112			RD14AB2E561J	FL-PROOF RD 560 J 1/4W		
R118			RD14AB2E102J	FL-PROOF RD 1.0K J 1/4W		
R121,122			RD14AB2E471J	FL-PROOF RD 470 J 1/4W		
R131		＊	RS14DB3D681JTE	FL-PROOF RS 680 J 2W		
R132			RD14AB2E100J	FL-PROOF RD 10 J 1/4W		
R133			RD14AB2E4R7J	FL-PROOF RD 4.7 J 1/4W		
R134		＊	RS14DB3D472JTE	FL-PROOF RS 4.7K J 2W		
R135,136			RS14DB3D182JTE	FL-PROOF RS 1.8K J 2W		
R137			RD14AB2E330J	FL-PROOF RD 33 J 1/4W		
R138,139			RD14AB2E560J	FL-PROOF RD 56 J 1/4W		
R141,142			RD14AB2E150J	FL-PROOF RD 15 J 1/4W		
R143,144			RD14AB2E101J	FL-PROOF RD 100 J 1/4W		
R152,153			RD14AB2E100J	FL-PROOF RD 10 J 1/4W		
VR1 ,2			R12-0094-05	TRIMMING POT.(470)IDLE CURRENT		
S1	2C		S40-6027-05	PUSH SWITCH (CARTRIDGE)		
D1 ,2		＊	HZS20S(B)	ZENER DIODE		
D1 ,2		＊	RD20JS(B)	ZENER DIODE		
D3 -5		＊	HZS8.2S(B2)	ZENER DIODE		
D3 -5			RD8.2JS(B2)	ZENER DIODE		
D6			HZS5.1S(B2)	ZENER DIODE		
D6			RD5.1JS(B2)	ZENER DIODE		
D7			1SS133	DIODE		
D7			1SS176	DIODE		
D8			E-202	CONSTANT CURRENT DIODE		
D9 ,10			E-152	CONSTANT CURRENT DIODE		

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D11 ,12			MA27Q(A)	VARISTOR		
D13 -16			HZS5.1S(B2)	ZENER DIODE		
D13 -16			RD5.1JS(B2)	ZENER DIODE		
D17 -22			1SS133	DIODE		
D17 -22			1SS176	DIODE		
D23 -26			RU4Z	DIODE		
D51			1SS131	DIODE		
D51			1SS178	DIODE		
D52			DSM1A1	DIODE		
D53			D5FB20*1	DIODE		
D54			S15VB20	DIODE		
D55 -58			DSM1A1	DIODE		
D59 ,60			HZS16N(B2)	ZENER DIODE		
D59 ,60			RD16ES(B2)	ZENER DIODE		
D61			HZS18N(B)	ZENER DIODE		
D61			RD18ES(B)	ZENER DIODE		
D62 -64			E-152	CONSTANT CURRENT DIODE		
D65 ,66		*	HZS8.2S(B2)	ZENER DIODE		
D65 ,66			RD8.2JS(B2)	ZENER DIODE		
D67 ,68			DSM1A1	DIODE		
IC1 ,2			TA2030	IC(LO/HI SWITCHING)		
IC3			UPC1237H	IC(PROTECTION)		
Q1 ,2			2SC945(A)(Q,P)	TRANSISTOR		
Q3 ,4			2SA733(A)(Q,P)	TRANSISTOR		
Q5 ,6			2SC1384NC(Q,R)	TRANSISTOR		
Q7 ,8			2SA684NC(Q,R)	TRANSISTOR		
Q9 -12			2SA1123(Q,R)	TRANSISTOR		
Q13 -16			2SC2631(Q,R)	TRANSISTOR		
Q17 ,18		*	2SC3944A(Q)	TRANSISTOR		
Q17 ,18		*	2SC3944A(R)	TRANSISTOR		
Q19 ,20		*	2SA1535A(Q)	TRANSISTOR		
Q19 ,20		*	2SA1535A(R)	TRANSISTOR		
Q21 ,22			2SC3419(Y)	TRANSISTOR		
Q23 ,24			2SC2320(E,F)	TRANSISTOR		
Q23 ,24			2SC945(A)(Q,P)	TRANSISTOR		
⚠ Q25 ,26		*	DAT1018NS*5	TRANSISTOR		
⚠ Q27 ,28		*	DAT1018PS*5	TRANSISTOR		
Q29 ,30			2SC3284*5	TRANSISTOR		
Q31 ,32			2SA1303*5	TRANSISTOR		
Q33 ,34			2SC2631(Q,R)	TRANSISTOR		
Q35 ,36			2SA1123(Q,R)	TRANSISTOR		
Q51			2SD1266(Q,P)	TRANSISTOR		
Q52		*	2SB941(Q,P)	TRANSISTOR		
Q53			2SC1845(F,E)	TRANSISTOR		
Q54			2SA992(F,E)	TRANSISTOR		
Q55			2SA1110(Q,R)	TRANSISTOR		
Q56			2SC2632(Q,R)	TRANSISTOR		
Q57			2SA992(F,E)	TRANSISTOR		
Q58 ,59			2SD1266(Q,P)	TRANSISTOR		
Q60		*	2SB941(Q,P)	TRANSISTOR		
Q61			2SC2320(E,F)	TRANSISTOR		
Q61			2SC945(A)(Q,P)	TRANSISTOR		
Q62			2SA733(A)(Q,P)	TRANSISTOR		
Q62			2SA999(E,F)	TRANSISTOR		

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PREAMPLIFIER UNIT (X08-2180-81)						
C1 ,2			CE04KW0J331M	ELECTRO 330UF 6.3WV		
C3 ,4			CK45FB1H152K	CERAMIC 1500PF K		
C5 ,6			CK45FB1H222K	CERAMIC 2200PF K		
C7 ,8			CE04KW1H010M	ELECTRO 1.0UF 50WV		
C9 ,10			CK45FB1H222K	CERAMIC 2200PF K		
C11 ,12			CE04KW1A101M	ELECTRO 100UF 10WV		
C13 ,14			CQ93HP2A683G	MYLAR 0.068UF G		
C17 ,18			CQ93HP2A203G	MYLAR 0.020UF G		
C19 ,20			CE04KW0J102M	ELECTRO 1000UF 6.3WV		
C21 ,22			CK45FB1H102K	CERAMIC 1000PF K		
C23 ,24			CE04KW1A101M	ELECTRO 100UF 10WV		
C25 ,26			C90-1332-05	NP-ELEC 10UF 25WV		
C27 ,28			CF92FV1H392J	MF 3900PF J		
C33 ,34			CC45FSL1H101J	CERAMIC 100PF J		
C35 ,36			CK45FB1H152K	CERAMIC 1500PF K		
C37 ,38			CE04KW1H010M	ELECTRO 1.0UF 50WV		
C39 ,40			CE04KW0J102M	ELECTRO 1000UF 6.3WV		
C41 ,42			CQ93HP2A683G	MYLAR 0.068UF G		
C43 ,44			CQ93HP2A203G	MYLAR 0.020UF G		
C45 ,46			C90-1332-05	NP-ELEC 10UF 25WV		
C47 ,48			CF92FV1H392J	MF 3900PF J		
C61 ,62			CC45FSL1H101J	CERAMIC 100PF J		
C63 ,64			CC45FSL1H470J	CERAMIC 47PF J		
C65 ,66			CF92FV1H122J	MF 1200PF J		
C67 -70			CK45FF1H473Z	CERAMIC 0.047UF Z		
C71 ,72			CK45FB1H152K	CERAMIC 1500PF K		
C73 ,74		*	CC45FSL2H180J	CERAMIC 18PF J		
C81			CE04KW0J471M	ELECTRO 470UF 6.3WV		
C82			CE04KW1E101M	ELECTRO 100UF 25WV		
C83 ,84			CF92FV1H103J	MF 0.010UF J		
C85			CF92FV1H224J	MF 0.22UF J		
C86			CE04KW1C220M	ELECTRO 22UF 16WV		
C87			CK45FF1H103Z	CERAMIC 0.010UF Z		
C88			CK45FB1H152K	CERAMIC 1500PF K		
C89			CK45FB1H222K	CERAMIC 2200PF K		
C90			CK45FF1H103Z	CERAMIC 0.010UF Z		
C91			CE04KW1V100M	ELECTRO 10UF 35WV		
C92 -95			CF92FV1H103J	MF 0.010UF J		
R21 ,22		*	RN14BK2C5112FTS	RN 51.1K F 1/6W		
R23 ,24		*	RN14BK2C3831FTS	RN 3.83K F 1/6W		
R29 ,30		*	RN14BK2E3R30FTS	RN 3.30 F 1/4W		
R43 -46			RD14AB2E100JTS	FL-PROOF RD 10 J 1/4W		
R47 -50		*	RS14DB3A101JTE	FL-PROOF RS 100 J 1W		
R67 ,68		*	RN14BK2C82R0FTS	RN 82.0 F 1/6W		
R69 ,70			RN14BK2C4752FTS	RN 47.5K F 1/6W		
R71 ,72		*	RN14BK2C3831FTS	RN 3.83K F 1/6W		
R121,122			RD14AB2E331JTS	FL-PROOF RD 330 J 1/4W		
R123,124			RD14AB2E101JTS	FL-PROOF RD 100 J 1/4W		
R125,126		*	RD14AB2E122JTS	FL-PROOF RD 1.2K J 1/4W		
R127,128			RD14AB2E181JTS	FL-PROOF RD 180 J 1/4W		
R129,130			RD14AB2E331JTS	FL-PROOF RD 330 J 1/4W		
R131,132			RD14AB2E101JTS	FL-PROOF RD 100 J 1/4W		
R151		*	RS14DB3A101JTE	FL-PROOF RS 100 J 1W		

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D1 ,2			HZS5.1S(B2)	ZENER DIODE		
D1 ,2			RD5.1JS(B2)	ZENER DIODE		
D3 ,4			MA27W(A)	VARISTOR		
D9 ,10			HZS5.1S(B2)	ZENER DIODE		
D9 ,10			RD5.1JS(B2)	ZENER DIODE		
D11 ,12			1SS133	DIODE		
D11 ,12			1SS176	DIODE		
D13 ,14			MA27Q(A)	VARISTOR		
D15 -18			E-272	CONSTANT CURRENT DIODE		
D21			HZS5.1S(B2)	ZENER DIODE		
D21			RD5.1JS(B2)	ZENER DIODE		
D22			1SS133	DIODE		
D22			1SS176	DIODE		
D23			E-272	CONSTANT CURRENT DIODE		
D24			HZS16N(B2)	ZENER DIODE		
D24			RD16ES(B2)	ZENER DIODE		
D25			1SS133	DIODE		
D25			1SS176	DIODE		
IC1 ,2			NE5532P	IC(OP AMP X2)		
IC1 ,2		*	NJM5532D-D	IC(OP AMP X2)		
IC3			UPD4027BC	IC(JK FLIP-FLOP X2)		
Q1 -4		*	2SD786(R,S)	TRANSISTOR		
Q5 -10			2SC2320(E,F)	TRANSISTOR		
Q5 -10			2SC945(A)(Q,P)	TRANSISTOR		
Q11 ,12			2SC2003(L,K)	TRANSISTOR		
Q13 ,14			2SA954(L,K)	TRANSISTOR		
Q15 -18		*	2SK369(BL,V)	FET		
Q15 -18		*	2SK371(BL,V)	FET		
Q19 -24			2SC2320(E,F)	TRANSISTOR		
Q19 -24			2SC945(A)(Q,P)	TRANSISTOR		
Q25 ,26			UPA68H(K,L)	DUAL FET		
Q27 -30			2SC2320(E,F)	TRANSISTOR		
Q27 -30			2SC945(A)(Q,P)	TRANSISTOR		
Q31 -34			2SA733(A)(Q,P)	TRANSISTOR		
Q31 -34			2SA999(E,F)	TRANSISTOR		
Q35 -42			2SC2632(Q,R,S)	TRANSISTOR		
Q43 ,44			2SA1124(Q,R,S)	TRANSISTOR		
Q45 -47			2SC2320(E,F)	TRANSISTOR		
Q45 -47			2SC945(A)(Q,P)	TRANSISTOR		
Q48			2SA733(A)(Q,P)	TRANSISTOR		
Q48			2SA999(E,F)	TRANSISTOR		
Q49			2SA954(L,K)	TRANSISTOR		
CONTROL UNIT (X11-2280-81)						
73	2B		A33-0093-04	REFLECTOR		
D5	2B		B30-0431-05	LED(LN21CPH) POWER		
D6 -8	2B		B30-1010-05	LED(SLP-281F-50U)DATE/TAPE SEL		
D9 -15	2B,2C		B30-0431-05	LED(LN21CPH)MONI,INPUT SEL,ETC		
D16	2B		B30-1012-05	LED(SLP-981C-50)		
D17 ,18	2B		B30-1010-05	LED(SLP-281F-50U)CD DIR,LINE		
PL1 ,2	2B		B30-1025-05	LAMP (14V 0.08A)		
C1 -20			C91-0747-05	CERAMIC 150PF K		
C21 ,22			CF92FV1H224J	MF 0.22UF J		
C23 ,24			CC45FSL1H101J	CERAMIC 100PF J		

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C25 ,26			CF92FV1H333J	MF 0.033UF J		
C27 ,28			CF92FV1H563J	MF 0.056UF J		
C29 ,30			CE04KW1H010M	ELECTRO 1.0UF 50WV		
C31 ,32			CC45FSL1H101J	CERAMIC 100PF J		
C33 ,34			CC45FSL1H470J	CERAMIC 47PF J		
C35 -38		*	CF92FV1H684J	MF 0.68UF J		
C39 -42			CE04KW1C220M	ELECTRO 22UF 16WV		
C43 -46			CF92FV1H334J	MF 0.33UF J		
C47 -52			CF92FV1H393J	MF 0.039UF J		
C53 ,54			CC45FSL1H221J	CERAMIC 220PF J		
C55 ,56			CE04KW1H2R2M	ELECTRO 2.2UF 50WV		
C57 ,58			CK45FB1H102K	CERAMIC 1000PF K		
C59 ,60			CF92FV1H334J	MF 0.33UF J		
C61 -64			CF92FV1H104J	MF 0.10UF J		
C65 -68			CK45FF1H472Z	CERAMIC 4700PF Z		
C69 ,70			C90-1335-05	NP-ELEC 4.7UF 50WV		
C71 ,72			CE04KW1E470M	ELECTRO 47UF 25WV		
C73			CK45FF1H103Z	CERAMIC 0.010UF Z		
C74			CE04KW1H010M	ELECTRO 1.0UF 50WV		
69	1B,2B		E23-0125-05	TERMINAL		
E1	1C	*	E13-0628-05	PHONO JACK(6P) AUX,TUNER,CD		
E2 ,3	1C		E13-0624-05	PHONO JACK(6P) DATE/TAPE		
E4	1A		E13-0233-05	PHONO JACK(2P) FRONT AUX		
E5	1C		E20-0824-05	SCREW TERMINAL BOARD(8P)SPKRS		
-			J61-0307-05	WIRE BAND		
L1 ,2			L40-1021-14	SMALL FIXED INDUCTOR(1.0MH,K)		
L3 ,4			L39-0080-15	PHASE-COMPENSATION COIL		
R3 ,4			RN14BK2C3160FTS	RN 316.0 F 1/6W		
R37 ,38			RD14AB2E330JTS	FL-PROOF RD 33 J 1/4W		
R39 ,40			RS14DB3A100JTE	FL-PROOF RS 10 J 1W		
R41 ,42		*	RS14DB3D180JTE	FL-PROOF RS 18 J 2W		
R43 ,44			RS14DB3D561JTE	FL-PROOF RS 560 J 2W		
R53			RD14AB2E102JTS	FL-PROOF RD 1.0K J 1/4W		
R55			RS14DB3D222JTE	FL-PROOF RS 2.2K J 2W		
R56		*	RS14DB3D472JTE	FL-PROOF RS 4.7K J 2W		
R57			RS14DB3D222JTE	FL-PROOF RS 2.2K J 2W		
R59			RS14DB3D102JTE	FL-PROOF RS 1.0K J 2W		
VR1	2B		R06-5143-05	POTENTIOMETER(200K)BALANCE		
VR2	2B	*	R10-5023-05	POTENTIOMETER (VOLUME CONTROL		
VR3	2B	*	R06-5154-05	POTENTIOMETER(100KAX2)LEVEL		
VR4	2B	*	R06-2017-05	POTENTIOMETER(5KBX2)TREBLE		
VR5	2B	*	R06-2016-05	POTENTIOMETER(5KBX2)BASS		
K1 ,2			S51-2045-05	MAGNETIC RELAY		
K3			S51-2074-05	MAGNETIC RELAY		
S1	2B		S42-3093-05	MULTIPLE PUSH SWITCH(A,B,C)		
S2	2B		S42-5045-05	MULTIPLE PUSH SWITCH(INPUT SEL		
S3	2B		S42-2135-05	MULTIPLE PUSH SWITCH(CD,LINE)		
S4	2B		S40-1064-05	PUSH SWITCH (MUTING		
S5	2C		S40-2200-05	PUSH SWITCH (AUX)		
S6	2B		S42-2109-05	MULTIPLE PUSH SWITCH(MODE)		
S7 ,8	2B,2C		S40-2200-05	PUSH SWITCH (LOUDNESS,FREQ)		
S9	2B		S42-2137-05	MULTIPLE PUSH SWITCH(BASS,TREB		
S10	1C		S90-0078-05	SLIDE SWITCH (REC OUT)		

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UE : AAFES(Europe) X: Australia M: Other Areas

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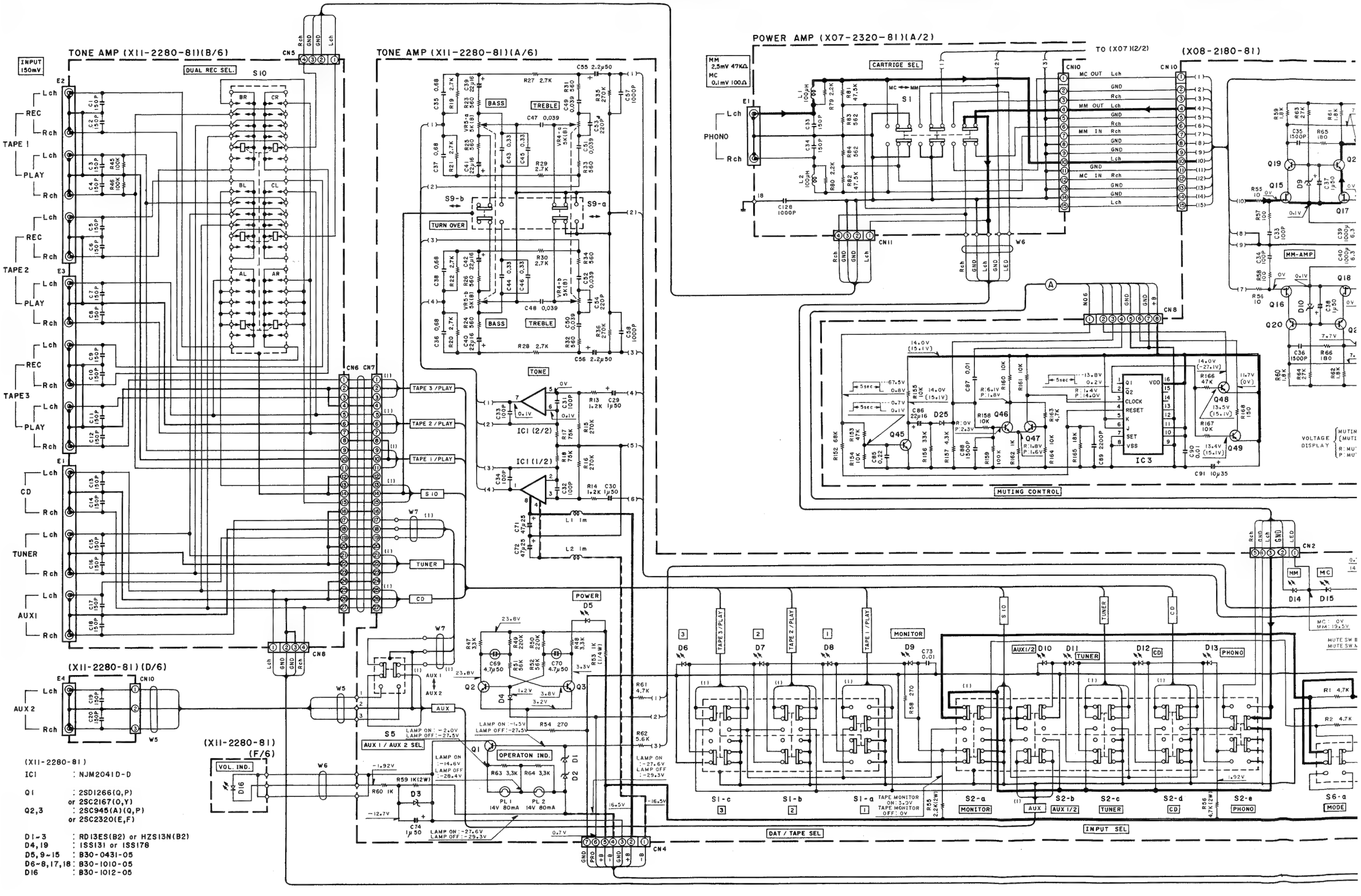
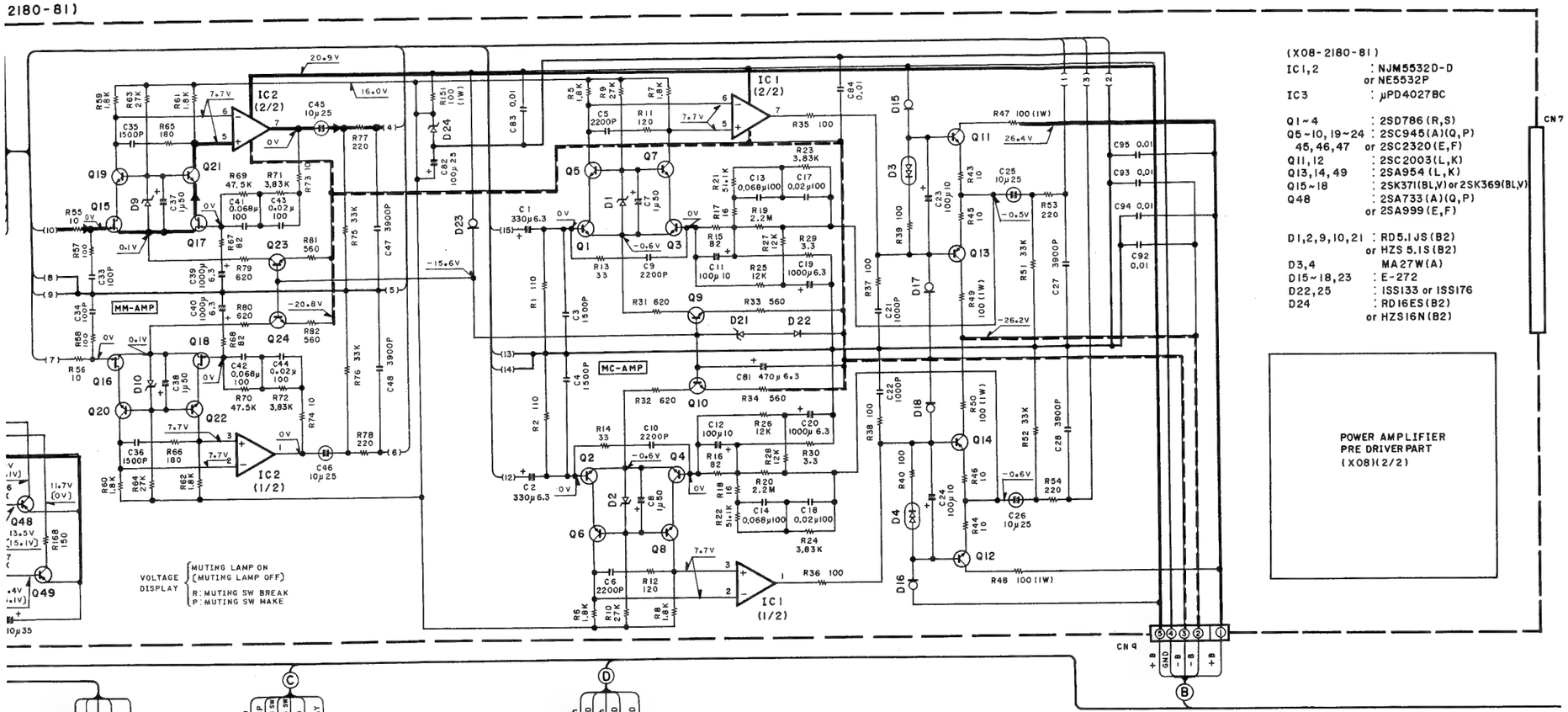
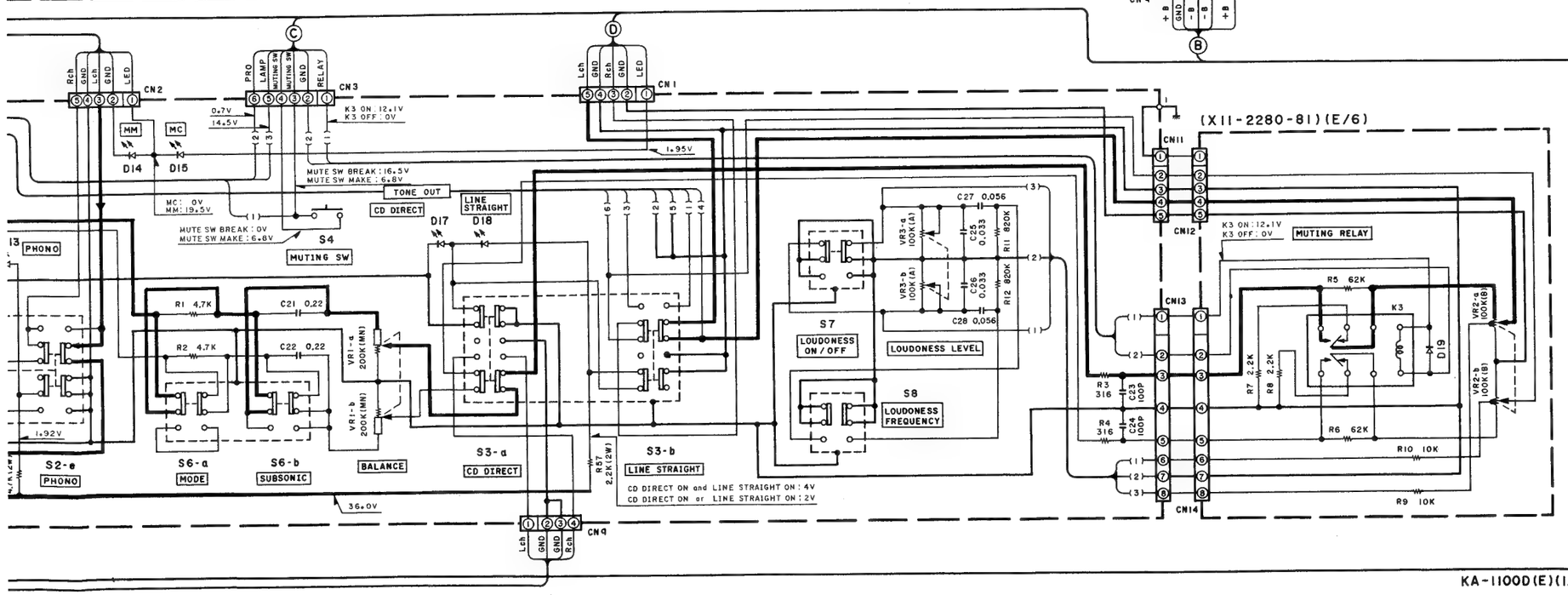

TONE AMP (X11-2280-81)(B/6)
TONE AMP (X11-2280-81)(A/6)
POWER AMP (X07-2320-81)(A/2)
(X08-2180-81)
TO (X07)(2/2)
INPUT 150mV
DUAL REC SEL.
S10
TAPE 1
TAPE 2
TAPE3
CD
TUNER
AUX1
AUX 2
BASS
TREBLE
TURN OVER
TONE
IC1 (2/2)
IC1 (1/2)
TAPE 3 /PLAY
TAPE 2 /PLAY
TAPE 1 /PLAY
S10
TUNER
CD
AUX
POWER
OPERATON IND.
AUX 1 / AUX 2 SEL.
S5
VOL. IND.
(X11-2280-81) (D/6)
(X11-2280-81) (F/6)
CARTRIGE SEL
MM 2.5mV 47KΩ
MC 0.1mV 100Ω
PHONO
S1
MM-AMP
MUTING CONTROL
IC3
VOLTAGE DISPLAY
DAT / TAPE SEL
INPUT SEL
MONITOR
AUX1/2
TAPE MONITOR ON:3.0V TAPE MONITOR OFF: 0V
MODE
MUTE SW B
MUTE SW A
MC: 0V
MM: 19.5V
(X11-2280-81)
IC1 : NJM2041D-D
Q1 : 2SD1266(Q,P) or 2SC2167(O,Y)
Q2,3 : 2SC945(A)(Q,P) or 2SC2320(E,F)
D1~3 : RD13ES(B2) or HZS13N(B2)
D4,19 : 1SS131 or 1SS178
D5,9~15 : B30-0431-05
D6~8,17,18 : B30-1010-05
D16 : B30-1012-05

2180-81)

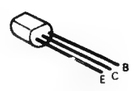


(X08-2180-81)

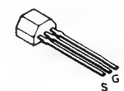
IC1,2	: NJM5532D-D or NE5532P
IC3	: μPD4027BC
Q1~4	: 2SD786(R,S)
Q5~10,19~24 45,46,47	: 2SC945(A)(Q,P) or 2SC2320(E,F)
Q11,12	: 2SC2003(L,K)
Q13,14,49	: 2SA954(L,K)
Q15~18	: 2SK371(BL,V) or 2SK369(BL,V)
Q48	: 2SA733(A)(Q,P) or 2SA999(E,F)
D1,2,9,10,21	: RD5.1JS(B2) or HZS 5.1S(B2)
D3,4	: MA27W(A)
D15~18,23	: E-272
D22,25	: 1SS133 or 1SS176
D24	: RD16ES(B2) or HZS16N(B2)



2SA1123
2SA1124
2SA684NC
2SA733(A)
2SA954
2SA992
2SA999
2SC1384NC
2SC1845
2SC2003
2SC2320
2SC2631
2SC2632
2SC945(A)
2SD786

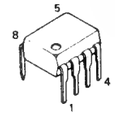


UPA68H

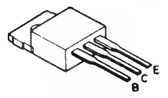


2SK371

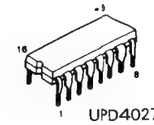
2SA1110



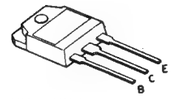
NE5532P
NJM2041D-D
NJM5532D-D



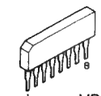
2SC2167
2SD1266



UPD4027BC



2SA1303*5
2SC3284*5

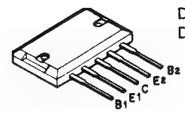


UPC1237H

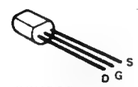
2SC3419

TA2030

2SA1535A
2SB941
2SC3944A



DAT1018NS*5
DAT1018PS*5



2SK369

- DC voltages are measured with a high impedance voltmeter. Values may vary slightly due to variations between individual instruments or/and units.
- Les tensions c.c. doivent être mesurées avec un voltmètre à haute impédance. Les valeurs peuvent différer légèrement du fait des variations inhérentes aux appareils et aux instruments de mesure individuels.
- Die angegebenen Gleichspannungswerte wurden mit einem hochohmigen Voltmeter gemessen. Dabei schwanken die Meßwerte aufgrund von Unterschieden zwischen einzelnen Instrumenten oder Geräten u. U. geringfügig

CAUTION: For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list). ⚠ Indicates safety critical components. To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried out (exposed parts are acceptably insulated from the supply circuit) before the appliance is returned to the customer.

KA-1100D(E)(1/2) (E)

KA-1100D
KENWOOD

POWER AMP (X07-2320-81)(A/2)

TO(X08)(1/2)

PRE AMP (X08-2180-81)

EQ AMPLIFIER MM/MC (X08)(1/2)

Lch

Rch

CASCODE

CURRENT MIRROR

DIF. AMP

CLASS-A

CN7

+OUT
−OUT
−LB
LB
NF
IN
GND
IN
NF
−LB
+LB
−OUT
+OUT
+HB
−HB

W5

L ch
GND
R ch
GND
+B

W8

CN8

Prt.
GND
MUT SW
MUT SW
GND
MUTE RELAY
GND
+15

CN9

+30
−30
−20
GND
+20

AVR

Q55,56 CONSTANT CURRENT

Q23,24 CONSTANT CURRENT

Q9~20 CASCODE

Q51~54 AVR

BIAS

IC1 DLD SWITCHING IC

IC2 DLD SWITCHING IC

COMPARATOR

SWITCHING

PROTECTI

Q25~28 HI-POWER

Q29~32 LOW-POWER

Q1~4 PRE DRIVER

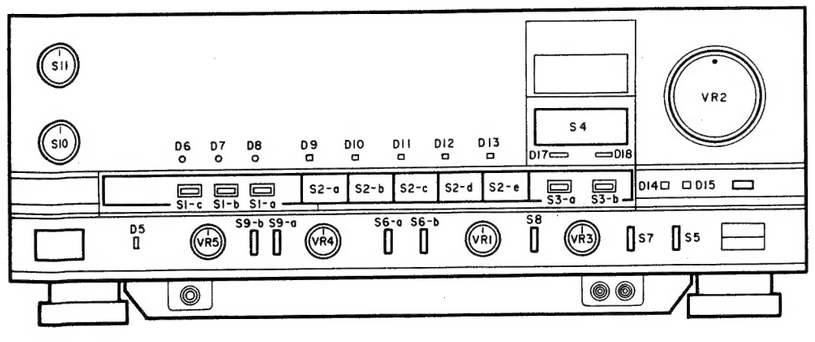
Q5~8 DRIVER

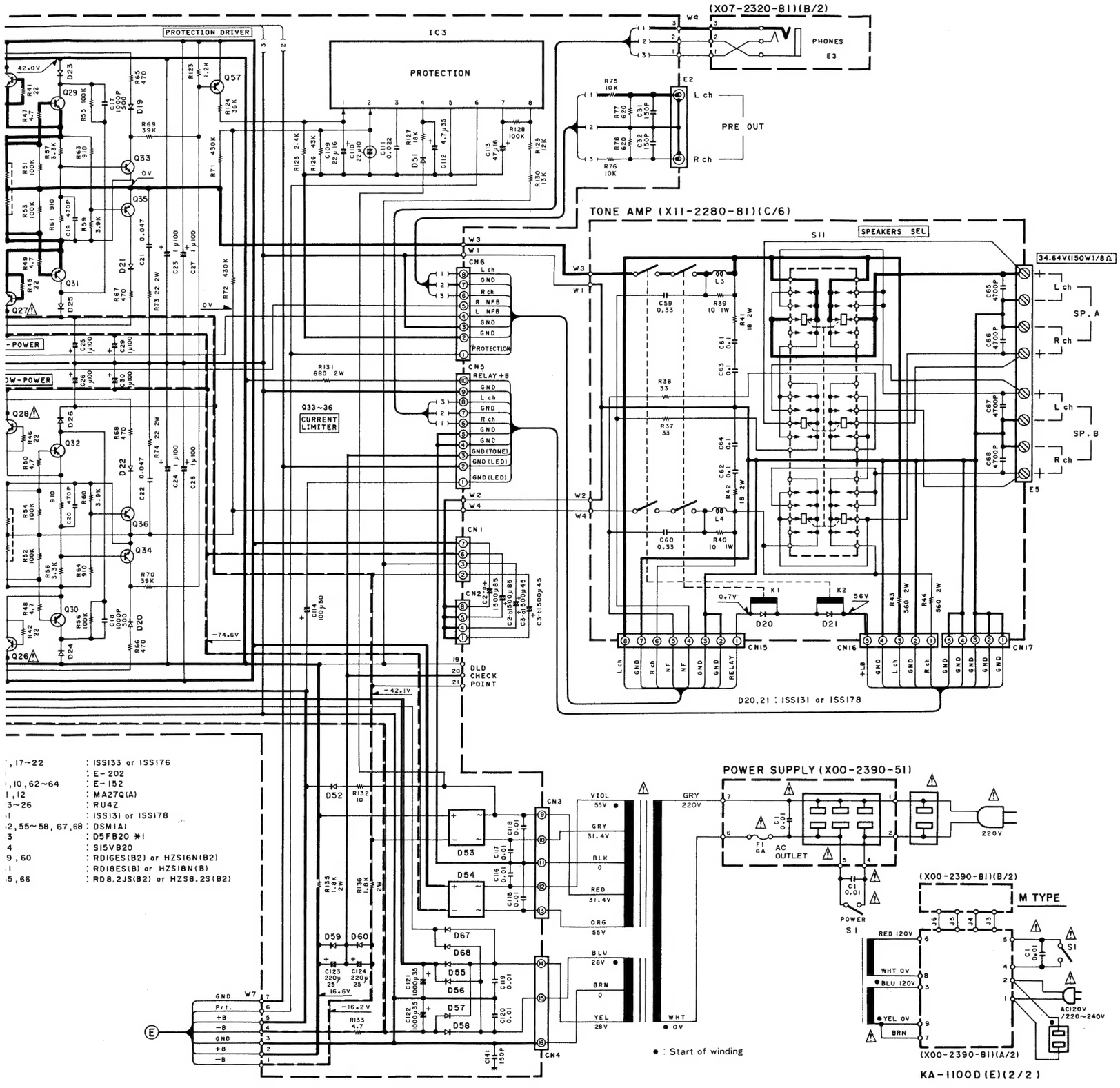
Q25,26 : μPA68H(K,L)
Q27~30 : 2SC945(A)(Q,P) or 2SC2320(E,F)
Q31~34 : 2SA733(A)(Q,P) or 2SA999(E,F)
Q35~42 : 2SC2632(Q,R,S)
Q43,44 : 2SA1124(Q,R,S)

D11,12 : ISS133 or ISS176
D13,14 : MA27Q(A)

(X07-2320-81)

IC1,2	: TA2030	Q27,28	: DAT1018P *5	D7,17~22	: ISS133 or ISS176
IC3	: μPC1237H	Q29,30	: 2SC3284 *5	D8	: E-202
		Q31,32	: 2SA1303 *5	D9,10,62~64	: E-152
Q1,2	: 2SC945(A)(Q,P)	Q51,58,59	: 2SD1266(Q,P)	D11,12	: MA270(A)
Q3,4	: 2SA733(A)(Q,P)	Q52,60	: 2SB941(Q,P)	D23~26	: RU4Z
Q5,6	: 2SC1384NC(Q,R)	Q53	: 2SC1845(F,E)	D51	: ISS131 or ISS178
Q7,8	: 2SA684NC(Q,R)	Q54,57	: 2SA992(F,E)	D52,55~58,67,68	: DSM1A1
Q9~12,35,36	: 2SA1123(Q,R)	Q55	: 2SA1110(Q,R)	D53	: 05FB20 *1
Q13~16,33,34	: 2SC2631(Q,R)	Q56	: 2SC2632(Q,R)	D54	: 15VB20
Q17,18	: 2SC3944A(Q,R)	Q62	: 2SA733(A)(Q,P) or 2SA999(E,F)	D59,60	: RD16ES(B2) or HZS16N(
Q19,20	: 2SA1535A(Q,R)			D61	: RD18ES(B) or HZS18N(B
Q21,22	: 2SC3419(Y)	D1,2	: RD20JS(B) or HZS20S(B)	D65,66	: RD8.2JS(B2) or HZS8.2
Q23,24,61	: 2SC945(A)(Q,P) or 2SC2320(E,F)	D3~5	: RD8.2JS(B2) or HZS8.2S(B2)		
Q25,26	: DAT1018N *5	D6,13~16	: RD5.1JS(B2) or HZS5.1S(B2)		





, 17~22	: ISS133 or ISS176
	: E-202
,10, 62~64	: E-152
1, 12	: MA27Q(A)
3~26	: RU4Z
1	: ISS131 or ISS178
2, 55~58, 67, 68	: DSM1A1
3	: D5FB20 *1
4	: S15VB20
9, 60	: RD16ES(B2) or HZS16N(B2)
1	: RD18ES(B) or HZS18N(B)
5, 66	: RD8.2JS(B2) or HZS8.2S(B2)

● : Start of winding

- DC voltages are measured with a high impedance voltmeter. Values may vary slightly due to variations between individual instruments or/and units.
- Les tensions c.c. doivent être measurées avec un voltmètre à haute impédance. Les valeurs peuvent différer légèrement du fait des variations inhérentes aux appareils et aux instruments de mesure individuels.
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CAUTION: For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list). ⚠ Indicates safety critical components. To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried out (exposed parts are acceptably insulated from the supply circuit) before the appliance is returned to the customer.

KA-1100D

KENWOOD

PARTS LIST

* New Parts
Parts without **Parts No.** are not supplied.
Les articles non mentionnes dans le **Parts No.** ne sont pas fournis.
Teile ohne **Parts No.** werden nicht geliefert.

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名／規格	Destination 仕向	Remarks 備考
S11	1C		S90-0062-05	SLIDE SWITCH (SPEAKERS)		
D1 -3			HZS13N(B2)	ZENER DIODE		
D1 -3			RD13ES(B2)	ZENER DIODE		
D4			1SS131	DIODE		
D4			1SS178	DIODE		
D19 -21			1SS131	DIODE		
D19 -21			1SS178	DIODE		
IC1			NJM2041D-D	IC(OP AMP X2)		
Q1			2SC2167(O,Y)	TRANSISTOR		
Q1			2SD1266(Q,P)	TRANSISTOR		
Q2 ,3			2SC2320(E,F)	TRANSISTOR		
Q2 ,3			2SC945(A)(Q,P)	TRANSISTOR		

E: Scandinavia & Europe H:Audio Club K: USA P: Canada W:Europe
T: England U: PX(Far East, Hawaii)
UE : AAFES(Europe) X: Australia M: Other Areas

⚠ indicates safety critical components.

KA-1100D

SPECIFICATIONS

Power Output

150 watts per channel minimum RMS, both channels driven at 8 ohms from 20 Hz to 20,000 Hz with no more than 0.004% total harmonic distortion

Maximum continuous Power Output (DIN) 1 kHz at 8 ohms	160 W + 160 W	
Maximum continuous Power Output (IEC/NF) from 60 Hz to 12,500 Hz 0.7% Total Harmonic Distortion at 4 ohms	200 W + 200 W	
Total Harmonic Distortion (20 Hz-20,000 Hz, 8 ohms)	: 0.004%	
Inter Modulation Distortion	: 0.003%	
Frequency Response		
PHONO "RIAA" Response	: 20 Hz-20,000 Hz, ±0.2 dB	
TUNER/CD/AUX/DAT/TAPE	: 1 Hz-150,000 Hz, +0 dB, −3 dB	
Signal to Noise Ratio (IHF-A)	**IHF'66**	**IHF'78**
PHONO (MM)	: 87 dB (2.5 mV)	78 dB (2.5 mV)
PHONO (MC)	: 76 dB (250 μV)	78 dB (250 μV)
TUNER/CD/AUX/DAT/TAPE	: 110 dB	80 dB
Signal to Noise Ratio at Unweighted, 50 mW Output (DIN)		
PHONO (MM)	: 60 dB	
TUNER/CD/AUX/DAT/TAPE	: 63 dB	
Input Sensitivity/Impedance		
PHONO (MM)	: 2.5 mV/ 47 kohms, 250 pF	
PHONO (MC)	: 100 μV/100 ohms, 1650 pF	
TUNER/CD/AUX/DAT/TAPE	: 150 mV/ 47 kohms	
Phono Maximum Input Level		
(MM)	: 210 mV, 0.003% T.H.D. at 1 kHz	
(MC)	: 8 mV, 0.003% T.H.D. at 1 kHz	
Output Level/Impedance		
TAPE REC	: 150 mV/220 ohms	
REC OUT	: 2 V/600 ohms	
Channel Separation (DIN) at 1,000 Hz		
PHONO (Terminated with 2.2 kohms)	: 67 dB	
AUX (Terminated with 47 kohms + 250 pF)	: 58 dB	
Tone Control		
TREBLE (3 kHz)	: ±10 dB at 10 kHz	
(6 kHz)	±10 dB at 20 kHz	
BASS (400 Hz)	: ±10 dB at 100 Hz	
(200 Hz)	±10 dB at 50 Hz	
Loudness Control (at −30 dB Volume Level)	: 0 ~ +8 dB	
Subsonic Filter (−3 dB)	: 6 dB/oct. at 18 Hz	
Damping factor	: 1000 (50 Hz)	

GENERAL

Power Requirements	: 220 V, 50 Hz .....European Models 120/220-240 V 50/60 Hz switchable .....Other Models
Power Consumption	: 260 W
Dimensions	: W 440 mm (17-5/16") H 170 mm (6-16/16") D 420 mm (16-9/16")
Weight (Net) (IHF'66)	: 18 kg (39.6 lb)

Note:
Component and circuitry are subject to modification to insure best operation under differing local conditions. This manual is based on the Europe (E) standard, and provides information on regional circuit modification through use of alternate schematic diagrams, and information on regional component variations through use of parts list.

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